

REMARKS

This Amendment is being filed in response to the Office Action dated January 17, 2003. Reconsideration and allowance of the application in view of the amendments made above and the remarks to follow are respectfully requested.

Claims 1, 2, 4, 6-15 are pending in this application of which Claims 1, 12, 13, and 14 are independent claims.

In the Office Action, Claims 1, 2, 4, 6, 7, and 12-15 are rejected under 35 U.S.C. §102(a) as anticipated by "Real-Time Gesture Recognition with the Perseus System" by Kahn et al. ("Kahn"). Claims 8-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kahn in view of "Put That Where?" by Billinghurst ("Billinghurst").

Kahn shows a system ("Perseus") that may be utilized for identifying an object in a scene through the use of a pointing gesture. However, similar to previously cited Zlatsin, Perseus requires registration of an object prior to being able to identify the object via the gesture. In the terms of Kahn, registration is described as instantiation of object representations ("OR", see, Kahn, section 3.3.1). As stated therein, (emphasis provided) "[e]ach OR in the Perseus system must be instantiated before it can be used. Instantiation involves sending a message to the LTVM providing a symbol to be associated with an OR and the type of OR required." This works because during instantiation, attributes of

desired objects are acquired and stored in the LTVM including location markers (see, Kahn, section 3.3.3) for later use during a "Find Object Pointed To" routine (see, section 3.7.1). This registration enables the Perseus system visual routine to reduce the potential objects that are pointed to so that only identified objects that fall within a visual cone centered around a line connecting the head and hand are returned by the system as an identified object. If an object from the LTVM is not identified in this region, the size of the cone is expanded until an object is returned.

This system cannot be utilized without building the object representations for the objects within the field of view. Further, this can of system is not sufficient when there are many objects within a field of view. Accordingly, the Perseus system shares the same problems as the "Finger-Pointer" identified in the present patent application. As stated in the present patent application, (emphasis provided) "[o]ne obvious problem associated with this system results from the misdirection of the camera to an object or target that the operator did not intend to target. Sources of this problem include operator error (i.e., the operator did not precisely point to the desired direction), system error (i.e., the system did not correctly interpret the operator's gesture), and inherent ambiguity (i.e., the information in the gesture is insufficient to define a target coordinate unambiguously). For

example, the likelihood that the camera will focus on the wrong target will increase if multiple objects are found along the trajectory of the pointed direction or if there are multiple objects within close proximity to the targeted object." This problem persists because the Perseus system identifies an object merely by the pointing gesture and does not utilize additional information during the identification process.

In sharp contrast thereto, Kahn does not disclose or suggest (emphasis provided) "sensing a triggering event generated by a human operator; receiving information that characterizes at least one machine-sensible feature of a target, said receiving step occurring substantially simultaneously with said sensing step; and aiming a camera in response to results of said sensing and said receiving step, wherein said sensing step includes sensing a gesture indicating a direction of said target" as required by Claim 1 and as substantially required by each of Claims 12, 13, and 14.

None of the cited prior art does anything to cure this deficiency in Kahn. As recognized in the January 17, 2003 Office Action, Billinghurst stores speech information with gesture information in a table as a registration step for later use by a graphics system (see, paragraph 6 of the Januaru 17, 2003 Office Action), not as part of an identification step.

Based on the foregoing, the Applicants respectfully submit that independent Claims 1, 12, 13, and 14 are patentable over Kahn,

alone or in view of Billinghurst, and notice to this effect is earnestly solicited. Claims 2, 4, 6-11 and 15 respectively depend from one of Claims 1 and 14 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the dependent claims. Accordingly, examination and allowance of each of the dependent claims is respectfully requested.

Applicants have made a diligent and sincere effort to place this application in condition for immediate allowance and notice to this effect is earnestly solicited.

Early and favorable action is earnestly solicited.

Respectfully submitted,

By 

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On April 17, 2003
By Natalie L. Manzo
Mailing Party